

What is claimed is:

1. An emulsion producing apparatus which is an emulsion producing apparatus for producing an emulsion by mixing at least two kinds or more of liquids, said emulsion producing apparatus comprising:

mixing means for mixing the plurality of liquids substantially uniformly;

a pressure rising pump for rising pressure of a mixture solution produced by the mixing means; and

emulsifying means for bringing the mixture solution pressurized from the pressure rising pump into an emulsified state;

wherein the emulsifying means includes a plurality of chambers into which the mixture solution flows;

wherein the plurality of chambers are partitioned by partition walls arranged among the respective chambers; and

wherein each of the partition walls is formed with at least one or more of small holes for communicating contiguous ones of the chambers interposing the partition walls.

2. The emulsion producing apparatus according to Claim 1:

wherein a diameter of an equivalent circle of the small hole of the partition wall falls in a range of 0.5 mm through 2 mm.

3. An emulsion producing apparatus which is an emulsion producing apparatus for producing an emulsion by mixing at least two kinds or more

of liquids, said emulsion producing apparatus comprising:

mixing means for mixing the plurality of liquids substantially uniformly;

a pressure rising pump for rising pressure of a mixture solution produced by the mixing means;

wherein delivery pressure of the pressure rising pump falls in a range of 5 MPa through 15 MPa; and

emulsifying means for bringing the mixture solution pressurized from the pressure rising pump into an emulsified state;

wherein the emulsifying means includes a plurality of chambers into which the mixture solution flows;

wherein the plurality of chambers are partitioned by partition walls arranged among the respective chambers; and

wherein each of the partition walls is formed with at least one or more of small holes for communicating contiguous ones of the chambers interposing the partition walls.

4. An emulsion producing apparatus which is an emulsion producing apparatus for producing an emulsion by mixing at least two kinds or more of liquids, said emulsion producing apparatus comprising:

mixing means for mixing the plurality of liquids substantially uniformly;

a pressure rising pump for rising pressure of a mixture solution produced by the mixing means;

wherein delivery pressure of the pressure rising pump falls in a

range of 5 MPa through 15 MPa; and

emulsifying means for bringing the mixture solution pressurized from the pressure rising pump into an emulsified state;

wherein the emulsifying means includes a plurality of chambers into which the mixture solution flows;

wherein the plurality of chambers are partitioned by partition walls arranged among the respective chambers;

wherein each of the partition walls is formed with at least one or more of small holes for communicating contiguous ones of the chambers interposing the partition walls; and

wherein a diameter of an equivalent circle of the small hole of the partition wall falls in a range of 0.5 mm through 2 mm.

5. The emulsion producing apparatus according to any one of Claims 1 through 3:

wherein the mixing means mixes the plurality of liquids and a surfactant substantially uniformly.

6. An emulsion producing apparatus which is an emulsion producing apparatus for producing an emulsion by mixing at least two kinds or more of liquids, said emulsion producing apparatus comprising:

mixing means for mixing the plurality of liquids substantially uniformly;

wherein the mixing means mixes the plurality of liquids and a surfactant substantially uniformly.

a pressure rising pump for rising pressure of a mixture solution produced by the mixing means;

wherein delivery pressure of the pressure rising pump falls in a range of 5 MPa through 15 MPa; and

emulsifying means for bringing the mixture solution pressurized from the pressure rising pump into an emulsified state;

wherein the emulsifying means includes a plurality of chambers into which the mixture solution flows;

wherein the plurality of chambers are partitioned by partition walls arranged among the respective chambers;

wherein each of the partition walls is formed with at least one or more of small holes for communicating contiguous ones of the chambers interposing the partition walls; and

wherein a diameter of an equivalent circle of the small hole of the partition wall falls in a range of 0.5 mm through 2 mm.

7. The emulsion producing apparatus according to any one of Claims 1, 2, 3, 4 and 6 :

wherein the pressure rising pump is driven by an electric motor whose rotational speed can be changed.

8. The emulsion producing apparatus according to any one of Claims 1, 2, 3, 4 and 6 :

wherein the pressure rising pump is driven by an engine utilizing the mixture solution brought into the emulsified state by the emulsifying

means as a fuel.

9. The emulsion producing apparatus according to any one of Claims 1, 2, 3, 4 and 6 :

wherein the pressure rising pump is of a variable delivery type.

10. The emulsion producing apparatus according to any one of Claims 1, 2, 3, 4 and 6 :

wherein a pre-pressurizing pump for pressurizing the mixture solution produced by the mixing means and sending it to the pressure rising pump is provided on an upstream side of the pressure rising pump.

11. The emulsion producing apparatus according to any one of Claims 1, 2, 3, 4 and 6 :

wherein the emulsifying means includes a cylindrical main body;

wherein inside of the main body is aligned with spacers for maintaining constant intervals between the partition walls and/or an interval between the partition wall and one end of the main body;

wherein the spacers are aligned alternately along with the partition walls along a longitudinal direction of the main body; and

wherein the partition walls and the spacers are urged in one direction along the longitudinal direction of the main body to press to the main body by a spring arranged in the main body.

12. The emulsion producing apparatus according to any one of Claims 1,

2, 3, 4 and 6 :

wherein the plurality of liquids are two kinds of liquids of water and the fuel.